# COMMUNICATION TERMINAL EQUIPMENT AND CALL INCOMING CONTROL METHOD

**Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.**

## BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a communication terminal equipment, and is applicable to, for example, a portable telephone (such as GSM•USDC•PDC) and a digital cordless telephone (such as PHS•DECT•CT-2).

2. Description of the Related Art

Conventionally, call incoming to a telephone is informed by means of an alert sound. Generally, such an alert sound is designed so that it does not stop ringing before a user effects next operation. Accordingly, when the user cannot give any quick response to the call incoming, there is no way other than the user breaks off the alert sound forcibly by means of going off-hook or leaves the alert sound to continue ringing.

In this case, in the method to forcibly break off the alert sound by means of the off-hook operation, there is a fear that the person on the other side is given an unpleasant feeling because the person on the other side can notice that the circuit was broken off intentionally. On the other hand, in the method to wait until the alert sound stops ringing, there is a fear that persons in the surroundings may be troubled by the alert sound.

Another method is therefore considered in which generation of an alert sound is stopped by a user's operation to intentionally break off power supply while to call is incoming. In this method, however, the turning-on of the power supply again is apt to be forgotten, and there is a possibility of missing the next incoming call. Further, there is a fear that long-time turn-off power supply may be regarded as a failure in an telephone network. Accordingly, this method is a not so preferable measure.

In view of the foregoing, an object of this invention is to provide a communication terminal equipment which is superior in selecting and handling properties for users in comparison with conventional one.

The nature, principle and utility of the invention will become more apparent from the following detailed description when read in conjunction with the accompanying drawings in which like parts are designated by like reference numerals or characters.

## BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings:

FIG. **1** is a schematic front view showing an example of the communication terminal equipment according to the present invention;

FIG. **2** is a block diagram showing an example of the inner circuit of the communication terminal equipment according to the present invention; and

FIGS. **3** to **5** are schematic diagrams showing the state transition.

## DETAILED DESCRIPTION OF THE EMBODIMENT

Preferred embodiments of the present invention will be described with reference to the accompanying drawings:



(1) General Configuration

In this embodiment, description will be made about a portable telephone in which an alert sound muting function is allotted to a power key for controlling switching of turning on/off power supply to thereby improve the convenience in handling.

The outline configuration of a portable telephone **1** is shown in FIG. **1**.

On a front panel **2**A of a body **2** used in this embodiment, there are provided not only operation keys **3** (including a power key **3**A, numeral keys **3**B, a send key **3**C, and an end key **3**D), but also a display **4** for displaying a telephone number. On this display **4**, a telephone number or the like entered by a user can be displayed. The user can confirm the entered contents or can perform mode selection on a picture screen. Further, in addition to those operation keys **3** and the display **4**, an antenna **5** and a speaker/microphone portion **6** (not shown) are provided on the body **2**.

FIG. **2** shows the inner configuration of the portable telephone **1**. The inner circuit is constituted by a CPU **7** (control means) as a main part so that the CPU **7** controls other parts of the inner circuit. For example, in the case where the user depresses the power key **3**A when the user wishes to originate a call, the CPU **7** performs control to close a power switch **8** so that electric power is supplied from a power source **9**. Thus, the portable telephone **1** is brought into a state of standing-by awaiting entering of a telephone number of the other party.

For example, if the user enters the telephone number of the other party through the numeral keys **3**B in this state, the CPU **7** displays the thus entered telephone number of the other party on the display **4**. If the user operates the send key **3**C, the CPU **7** begins call origination to the other party through an RF signal processing portion **10** and the antenna **5**.

If the other party responds to the call origination and conversation is started, a reception signal received through the antenna **5** is fetched into an audio signal processing portion **11** through the RF signal processing portion **10**, and then the signal is outputted from a speaker of the speaker/microphone portion **6** after signal-processed in the audio signal processing portion **11**. On the other hand, the user's voice is fetched into the audio signal processing portion **11** through a microphone of the speaker/microphone portion **6**, and transmitted from the antenna **5** through the RF signal processing portion **10** after being signal-processed in the audio signal processing portion **11**.

On the contrary, when a call is given to this portable telephone **1** from another party, the CPU **7** detects this call and performs control to turn on an alert on/off controller **12** to thereby make an alert sound generator **13** generate an alert sound. Thus, the user is able to notice the call incoming. In this state, if the user depresses the send key **3**C, the CPU **7** detects this depression, so that it enables conversation and stops the generation of the alert sound at the same time. This is a case where the user can respond to a call incoming. However, there is a case where the user cannot respond to a call incoming in accordance with the surroundings at the time of the call incoming. To cope with such a case, therefore, there is provided a function to eliminate an alert sound without forcibly cutting-off a circuit under a predetermined operation.

This operation is carried out by the power key **3**A. Normally, the power key **3**A is used to open the power switch **8** to thereby break off the power supply from the power source **9** under the condition that the power key **3**A is depressed for a predetermined time or more (for example,